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ABSTRACT

The recent flood of environmental literature mourns our values and actions which have led to such predictable results. Our value systems, making use of the available science and technology, have wrought changes in the land and its meaning which neither the land nor the human spirit can accommodate with ease; crises of both an environmental and a spiritual nature are inevitable. As solutions are sought for environmental problems and attempts made to adjust our way of life to an environment finite in space and resources, the method must be a humanized one. The central image of the many-faceted individual in a kaleidoscopic environment is derived as much from the humanist as it is from the scientist and the engineer. (Author/KSM)

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HE ROLE OF THE HUMANITIES IN ENVIRONMENTAL EDUCATION*

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It is probably presumptuous for one trained in the biological sciences to come before you to discuss the role of the Humanities in Environmental Education, but the chances are that it would be at least as presumptuous for a humanist to discuss the role of the environment in humanistic education. Be that as it may, I take some courage from the fact that what efforts have been made in the past to merge the scientific and humanistic aspects of man's endeavors, and with which I am ~~now~~ familiar, are those that have been made by biological scientists: Julian Huxley[1] has put his thoughts in terms of an evolutionary humanism, Rene Dubos[2] has advanced the cause of humanistic biology, Van R. Potter[3] speaks of bioethics, while Dobzhansky[4] describes what he calls the biology of ultimate concern. The books and articles of Garrett Hardin are also threaded throughout with ethical and social implications, while the ethological writings of Lorenz, Tinbergen and von Fritsch are gradually being interpreted in broader contexts, with the behavioral characteristics and idiosyncracies of gulls, fish, greylag geese and bees being carried over into the realm of men, sometimes meaningful, sometimes with unfounded enthusiasm and accompanying distortion. Possibly this concern voiced by the biologists arises from the feeling that they "see" more clearly than

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most the chimerical creature that man seems to be: animal and demi-god, saint and devil, hunter and hunted, and all within the family of man. The insights of these writers, sharing commonalities within their individualistic presentations, do not offer any ultimate view of man, but we can today ignore their implications only to our own detriment.

I will not attempt to emulate these biologists, nor will I attempt to coin a well-turned phrase to describe what it is that I want to say; rather I would point out that just as there is a web of life in the biological realm, with every strand in the web connected directly or indirectly with every other strand, and through which a flow of energy passes, so, too, is there a web of thought, experience and action which, at any given point in time, is a reflection of the intellectual temper and accomplishments of that age, and which also determines man's relation to his environment and, consequently, his behavior and his outlook. Man, the value-forming and value-guided animal, is the central element in this web; the web changes with each age, as new discoveries, new ideas, new technology and new ways of apprehending reality make their appearance and exert their effect. Through and along the strands of this web the intellectual, emotional and societal energies ebb and flow, to mix and blend and emerge in new shapes, to be converted into other forms, and to produce new and often surprising effects. It is by being aware of, understanding and making use of these energies that we can reassess and reshape the past in order to make better use of it in the present, and, hopefully, to mold the future to our needs as human beings.

I shall not attempt to define environmental education. It is too vast and too varied a subject to lend itself to easy phrase-making, but

to be able to discuss the Humanities in the present context, one does need a definition. I have purposely avoided asking the planners of this symposium how they would define the Humanities. In this way I could mold the meaning of the term to my own ends, although I would hope that in doing so I do not distort it beyond recognition or usefulness.

If one thinks of the Humanities, spelled with a capital H, one intuitively thinks of the arts, language and literature, philosophy and some aspects of history, all familiar academic disciplines, segregated and compartmentalized in the several departments of our colleges and universities. It is from these disciplines that students generally gain an initial comprehension of esthetics and ethics in a formal sense, acquite a sense of historical perspective, and begin to see man, both in a generic and an individual sense, living out his life in a thousand different ways. But whether the content and the manner of what is taught by the practitioners of these disciplines has meaning to education in general and to environmental education in particular, is as problematic and uncertain as it is in the sciences and engineering. As a casual perusal of humanistic journals will reveal, the so-called humanists can be as narrow, parochial and unintelligible in their specialities as the most myopic of scientists. As the philosopher Ernst Nagel has somewhere said, "the capacity for making contributions to moral enlightment is not uniformly distributed," and, it might be added, neither is it limited to subject matter. I would, therefore, shift my definition of the humanities by going from an upper to a lower case h, and embrace all of the disciplines, including the sciences and the practical arts, which are approached in a humanistic manner, that is, which keep man as the central element in the

web of history, and which give, and always have given, to man a sense of continuity, of individual worth and dignity, of animal antecedents as well as the heights of human achievement, of who, what and why man is in the realms of space and time, and of energy and matter. If the humanities, including the sciences, can give us that, we need ask no more of them. The inner, private and subjective world of the humanist can be, and all too frequently is, disjoined from the external, public and objectified reality of the scientist, but only at a loss to both.

The several areas of learning were not always thus disjoined from each other, and once, in fact, were comfortably embraced within the designation "natural philosophy", a term which lost its meaning as the fragmentation of the disciplines took place in the 19th and 20th centuries. If we but scan the pages of the recent past we find that as the techniques and instruments for measurement and quantification became more and more perfected, and as the questions asked of nature and of man became more narrowly conceived, more sharply defined and hence more readily answerable, the scholarly disciplines, and particularly the sciences, have either dropped man out of the picture in order to bring accuracy and objectivity in, or have given him a universal but nameless face pieced together from computer cards, statistical tables and projection graphs. The individual man - and who among us is not an individual? - is lost in the process, and the unmeasurable qualities of man, his search for individual meaning and dignity, his value systems, his love for life itself and for beauty, form and proportion - in a word, his human as opposed to his animal qualities - have been pushed aside to be handled as best they can be by the poet, the priest or the philosopher, or they have appropriated

by the psychiatrist, to be dissected at times beyond recognition. Possibly this is the only way by which the burgeoning mass of humanity and its complex of problems can be handled and analyzed, but there can be little doubt that the leveling force of anonymity has been shattering.

What has all of this to do with environmental education? Very simply, I believe the question to be central and fundamental. Environmental problems arise because man is somewhere in the picture, and they must be defined in terms of man. When man makes use of an environment to maintain or improve his way of life, he does so within a system of ideas which, consciously or unconsciously, reflects his attitude toward nature and himself. An environmental crisis is therefore a crisis of the human spirit, a crisis that arose because some judgmental facet of our rational, emotional, ethical or moral being led to a past action, the consequences of which we are only now beginning to understand, to measure and to comprehend in terms of future restraints. Every stable culture has its values that provide it with a sense of purpose, but the situation in which we find ourselves today suggests that the web of thought that can bind us together, and help us to direct our activities wisely as human beings, that can enable us, individually and collectively, to reach full human potential in a congenial and sustaining environment, has been seriously distorted. The warning signals of impending danger that traverse the strands of the web have not been intercepted, or if intercepted, have been either misinterpreted or ignored. We are, of course, ringed about by things and experiences which have much to do with how we view the world about us, and external events over which we have no control, as well as those for which we are ourselves responsible, introduce discontinuties into the tenor of

our ways, with the result that we come to view the past, the present and the uncertain future not so much as a continuum of human endeavor as a series of ad hoc events unrelated to each other. Our lives become similarly episodic and fragmented, lacking the cohesiveness that provides us with a sense of shared goals and common ideals.

In these days dominated by the brilliance, pervasiveness and, oftentimes, perversiveness, of science and technology, man has been removed from the center of the web, and replaced by something that we can define only with difficulty, but a "something" that has its own built-in autonomy and accelerator. This fact, we need to recognize, is one of the most insidious causes of environmental alteration. It is a displacement that, for the great masses of men, leaves little room for the sensibilities and sensitivities of the individual human spirit, and we find ourselves as ethical animals in a world that we have come to recognize possesses no ethical element of its own to comfort us. Thrown inward upon ourselves, we have now come to realize our dilemma. Overwhelmed by the rapidity and magnitude of intellectual and material change brought on by science and technology, we find that the stabilizing myths, the social structures and the innermost and transcendent experiences of men of all ages are not sufficient to enable us to comprehend and to adjust to the kaleidoscopic and shifting scenes around us. Change, of course, has always been one of the most difficult of phenomena to grasp and to manage. Our universities and our systems of religion, law and government were once the great stabilizing forces of society, capable of modulating change and keeping it within human dimensions of manageability. Today they seem no longer equal to the task. The greatness that is man in his finer moments is lost

in a vortex of fear and dispair, rather than serving as a source of comfort, inspiration and guidance. Granted that we can never be wholly prepared for that which is new, a circumstance which will arise more and more frequently as we move from a state of abundance and affluence into an economy of shortages, we nevertheless need to face the fact that every problem confronting us today, every environmental crisis that emerges, stems from a value judgment made in the past, whether made consciously or unconsciously, whether made with all good intentions for all men or from a narrow parochial and partisan base. I once heard a dean of an engineering school describe all environmental problems as engineering problems. Needless to say, I do not agree, for I believe that every environmental problem is, first and foremost, a problem of values; all other aspects are secondary. No one with any understanding of the significance of science and technology would deny that they are of central importance in helping us to solve many of our environmental problems, and that they can provide us with alternative options for action, but the decision as to the option to be selected, the direction in which to proceed, and the consequences of any action taken, are fundamentally value judgments related to what we as human beings want out of life within the constraints imposed upon us by external considerations. It is our system of human values that is in need of re-examination far more than the ad hoc solution of any particular environmental problem; we need to understand the ecology of the human spirit as well as the ecology of the environment.

In times past, our several cultures included the shaman, although he has travelled under many other names as well. He was, in a sense, a single-minded individual capable of blending the natural and the spiritual

into a single encompassing entity, and of carrying an individual or a culture through periods of crisis. Today, bereft of the gods who would sustain us, and lacking shamanistic intermediaries in whom we place our trust, we face an uncertain future with apprehension and foreboding. As we look into the mirror of the future, we see only ourselves, and we sense, as never before, our aloneness and our vulnerability.

In making this point I do not wish to be understood as denigrating the role played by the sciences and the practical arts in our lives. Man is unlike other organisms in that he is far less subject to the vagaries and vicissitudes of the natural environment. Except for marginal populations still in a monadic state of existence, man adapts by creating his own environments, thereby exerting a measure of control unprecedent in the biological world, and this inevitably brings about environmental alterations. Not all of this is to be deplored, of course, for we are what we are because of what we have done in controlling the environment. Without the ability of man to adapt the environment to his own needs, there could be no productive farms, no cities, none of the great monuments to man's imagination and innovation, none of the great leaps that have carried man to his present cultural state.

There is little argument over the fact that man's animal needs of sustenance, protection and propagation must be met before the human qualities of man can be nourished. As one humanist has pointed out, man must learn to "weave a coat before he makes a tapestry...he must learn the plain ways of communication before he writes a poem."[5] But man needs more than the animal requisites for the continuation of his cultures. He needs an inner as well as an outer world of reality, a need that finds

expression in the varied mythologies and arts of the world on the one hand, and in the structure, discoveries and applications of science on the other. He is also a creature of action in the pursuit of his cultural ways, an action that has put a greater and greater premium on the use of extrasomatic sources of energy and of the material resources of the environment. We now recognize that our cultural successes have their costs as well as their benefits; the price we now pay is high, and presumably will mount higher in the years to come. The late 19th century America saw the emergence of social Darwinism, an economic atrocity committed by man against man and justified in the name of evolution. Today we hear less of the philosophy and rhetoric of Darwinian individualism, but a collective or institutional Darwinism has sprung up in its stead, leading to a wholesale charge in, or destruction of, the environment instead of an obvious exploitation of the masses, although in the final analysis it is always the masses of men who are the victims. Perhaps I can make my point more clearly by quoting a passage from Stephen Crane, author of The Red Badge of Courage, who wrote in the tradition of naturalism around the turn of the century. The passage is taken somewhat out of context, but not too much so. In his short story, The Blue Hotel,[6] his main character was the Swede, searching for identity and recognition in the purposeless and deterministic world as seen by Crane. The Swede was eventually and pointlessly killed in a poker game, and as Crane described the scene "The corpse of the Swede, alone in the saloon, had its eyes fixed upon a dreadful legend that dwelt atop of the cash-machine: 'This registers the amount of your purchase' ".

As environmental educators we have our eyes fixed on the cash-machine of the world, and we share with the dead Swede the difficulty of reading

the purchase price of our way of life. We only know that the machine continues to ring up our purchases, and that the price increases as the resources of the environment are being constantly drained to scarcity levels. What is not so readily obvious is that, in the end, the purchase price must also include the cost of the impoverishment of the spirit, although we have no real way of ascertaining a quantitative figure for this side of the ledger. Eric Hoffer, I realize quite fully, would disagree with me. He sees nature as the enemy to be subdued if we are to know the full meaning of human freedom, and he equates that freedom with the feeling of having his feet on a paved road. "If this nation declines and decays," he points out, "it will be not because we have raped and ravaged a continent, but because we do not know how to build and maintain viably cities. America's destiny will be decided in the cities."[7] And again, "So true is it that the city is man's optimal creative milieu that even communion with the self is more attainable in the press and noise of the city than in the silence of the great outdoors. There is no genuine solitude outside the city."[7] My own sympathies place me closer to the position expressed by Henry Beston, author of Outermost House. "Nature is part of our humanity, and without some awareness and experience of the divine mystery man ceases to be man. When the Pleiades and the wind in the grass are no longer a part of the human spirit, a part of the very flesh and bone, man becomes, as it were, a kind of cosmic outlaw, having neither the completeness and integrity of the animal nor the birthright of a true humanity."[8]

In a somewhat different context, but expressing a similar fear, Aldous Huxley, after reading Rachael Carson's Silent Spring, said that "we are

exterminating half of the basis of English poetry."[9] We are, in my estimation, the poorer for these losses, not perhaps in terms of physical well-being but rather in those unmeasurable qualities that make us human beings. I can agree with Hoffer when he states "that man's greatest achievements were conceived and realized not in the bracing atmosphere of plains, deserts, forests and mountaintops but in the crowded, noisy and smelly cities of ancient Mesopotamia and Egypt, and of Jerusalem, Athens, Florence, Amsterdam, Vienna, Paris, London and New York."[7] We need the cities, of course, but we also need the plains and the deserts, the wild rivers and towering mountains, to refresh ourselves.

It would be straining a point very badly to maintain that it is our science and our technology that turns us into "cosmic outlaws." It is we who are the Frankensteins, we who have seemingly lost control of that which we have created. How then do we, as environmental educators, bring man back into central focus so that we can not only portray with reasonable accuracy the physical, biological and social results of the man-environment interaction, but also point out the implications of these interactions to the intellectual, emotional and social development of our students and ourselves? I expect that most of us, as teachers, find it easier and more comfortable to be intellectual robber barons, dealing in profit-and-loss fashion with faceless graphs and figures in the interests of accuracy and objectivity, and when stress is brought to bear on an environmental system, to reconstruct our flow charts of energy and matter as we search for new levels of environmental equilibrium. The cold and depersonalized prose of our professional journals is a reflection of ourselves. The humanity of man is conspicuously absent in our teaching approach, but

whether this absence is due to fear of sentimentality or egocentricity or to our own intellectual limitations is difficult to determine. But it is as biological for man to dream his dreams and to construct his heroic myths as it is for him to eat and to propagate, to hammer his Pietas and Davids out of the chaos of life as it was for Michelangelo to hammer his out of formless blocks of Carrara marble. Only by recognition of the centrality of man in the environment and keeping him constantly in sharp focus can we begin to see our environmental problems in perspective; only then, as John Donne has written, can we begin to knit "the subtle knot that makes us men."

I am not so naive as to believe that alterations in life style more consistent with environmental constraints are easy to achieve, although I am optomistic enough to believe that they are attainable, and realistic enough to know what they must change if we are not to be continuously confronted by traumatic crises. In this nation the affluent life that we lead is of relatively recent origin, a 20th century phenomenon based on exploitation of the resources of the world rather than confining ourselves to what we have ourselves, but it would be arrogance indeed to believe that it can continue at the expense of the remainder of mankind, and in an age of emerging scarcities. It would be granted by all of us that the material benefits derived from this exploitive aspect of our culture have been enormous, and we would give them up only grudgingly and painfully. Changes, if they are to come and as I think that they must come, will take place slowly, but hopefully they will come as the result of conscious and deliberate planning rather than being crisis-induced by shortage economies. New geographical frontiers, so generative

of human expansiveness, innovation and optimism, are gone, but we have yet to plumb the depths and extent of the human mind and human behavior from which an altered environmental consciousness must emerge. Environmental education, therefore, needs to embrace a consideration of the quality of life for all peoples as well as a knowledge of environmental parameters and an acquisition of the techniques for the solution of environmental problems. We must, I believe, broaden our teaching base and our environmental vision. Environmental literacy of the future must include the humane as well as the scientific, the artistic as well as the technological, the dreams and yearnings as well as the factual and the quantitative. All literature and all experience that is relevant should be explored, and that from history, religion, philosophy and the arts should be included along with the scientific and the technological.

Each of us, if we subscribe to the above point of view that we have a need to see man and his environments as total rather than fragmented systems, will approach our educational tasks in individualistic ways, for we are teachers of varied backgrounds, interest and expertise. Each of us, however, will cover a series of common problems: population, energy, resources, land use, pollution and behavior, to list some of the more obvious. Most of us will have little difficulty with the scientific and technological aspects of these subjects; they are amply documented in the voluminous literature currently available. The broader and non-technical aspects of these areas of concern - the humane aspects, if you will - require more than casual planning if they are to be an integrated feature of our discussions instead of being simply disruptive, diversionary or platitudinous. When I seek to do this, to inject the human and the

humane into the issues of environmental concern, I turn most naturally to the literary scene. It is the area, other than biology, that I know best and with which I am most at ease. I can see no reason, however, why other areas of human endeavor cannot be similarly explored - the arts, religion, economics, social phenomena - provided man, seen as living, breathing, dreaming, acting individuals, is kept in sharp focus. Let me illustrate by way of several examples. A humanist may very well disagree with my choices of literature from his field, but they are selected for their relation to particular environmental concerns.

The "population problem" is one that concerns any thinking teacher. But it is also one within which the "numbers" game is so frequently played, often through the medium of "crisis" teaching, and where the individual appears only as a statistic. It is furthermore a somewhat misleading term, for it is not just a single problem of world-wide dimensions but rather a multitude of smaller entities, each of which is peculiar unto itself and each of which may have a peculiarly unique solution. As teachers, we generally examine birth and death rates, make future projections on the basis of current or imagined trends, and judge these in terms of the capacity of the environment to sustain these numbers at various levels of sustenance. We have our students read those who express the "doomsday syndrome", and counterbalance these with the writings of those whose faith in our technological inventiveness to feed, clothe and house the world is unbounded. We may point out that, in contrast to today, Europe had time during the 1800's and early 1900's to solve some of her population pressures through emigration to the Americas and to Australia. The inscription on the Statue of Liberty proclaims this: "Give me your tired, your poor, /

Your huddled masses yearning to breathe free..." We document in grim terms the fact that the peoples of the Indian continent and the area of the sub-Sahara continue to face the specter of starvation through the crush of numbers, inadequate food supplies and an out-dated or non-existent technology. These are necessary pieces of information, and we cannot do without them if reasonable solutions are to be sought. But there is lacking an important human ingredient: compassion, and compassion is difficult to generate from the study of graphs and statistical tables. We need to turn to smaller problems which we can more readily grasp.

Not all population problems are necessarily related to number, they are not always solved by conventional means of population control such as birth control and abortion, and they are not peculiar to today. Vast areas of the Middle East, Greece of the Golden Age and Rome of a later day, all felt the pressures of burgeoning growth. Theirs was a smaller world than that which we know today, and the treeless, eroded hills of these areas bear mute testimony to the inability of the land to support these peoples. On a somewhat smaller scale, but closer in time to our own century, is the population problem of Ireland. In the 17th century, Jonathan Swift, in A Modest Proposal," suggested in satiric terms one way to alleviate the Irish situation, but it took a fungus to do what man seemed incapable of doing. In mid-19th century, the potato blight ruined Ireland's basic food staple for a number of years, and brought on starvation, massive emigration to America and Australia, and the institution of late marriages, all of which cut the population in half and brought about a measure of stability to an unhealthy and uneasy situation. England has also had its problems although they are of a different character, as Thomas Malthus,[10] in his now famous

essay, made clear in the late 18th century. Malthusian predictions of famine, disease, misery and vice, stemming from inadequate food production, rising populations levels and attendant social conditions, have been discredited by any number of scholars since that time, but such academic reassurances are of small comfort to the man who sees himself and his family disintegrating, physically and morally, because of insufficient diet. Malthusian ideas, if judged within the intellectual temper of his age, go far beyond the simple differences between arithmetic and geometric increases; Malthus needs to be read in the context of the rationalism of his time, the perfectibility of man as advocated by Godwin and Condorcet, Malthus' concept of moral restraint, the economic theory advanced earlier by Adam Smith in his Wealth of Nations, the poor laws of England and their background, and the effects of industrialism on the great masses of the cities as the energy of coal was harnessed to the newly developed steam engine. It is the latter situation which Charles Dickens depicts so well in his novel, Hard Times.

In our own century, and particularly during the first four or five decades, the more serious population problems were of a political, economic and ethnic nature, and only incidentally numerical: the Russian pogroms, the extermination of the Jews by Nazi Germany, the plight of minority groups in this country, the agonies and problems of the emerging Third World nations. The humanistic literature available for incorporation into environmental education courses is enormous and varied, and of vital importance if we are to see man in his totality. In conjunction with such books as Karl Sax's Standing Room Only, Meadow et al, The Limits to Growth, and Paul Erlich's The Population Bomb, one should deal with Humanae Vitae," the papal encyclical of Pope Paul VI on the sanctity of life, Thoreau's Life Without

Principle," Alan Paton's Tales from a Troubled Land, James Baldwin's Notes of a Native Son, and Robert Frost's The Death of the Hired Man.

The point being made, therefore, is that the population problem is not just one of graphs, tables and projections, with all of the dire consequences as these are extended into the future; it is also one of individual human beings and cultures caught up in events and circumstances larger than themselves and often not of their own making. It is the dilemma of man judged collectively and men judged individually. It is one thing to be viewed impersonally, even deterministically, in the monochromatic beam of scientific investigation, and quite another to be viewed sympathically, emotionally, even autonomously, in the rainbow hues of the humanist. It is one thing to be a statistic, quite another to realize, belatedly and often without hope, that one could have lived a thousand lives and end up living only one, with the others dieing unrealized as death intervenes. The scientific view is a valid one, but it is incomplete without the other.

Let me touch upon another problem, one intimately related to that of population, and like it, deceptively complex. This is the question of the land upon which we live, from which we draw our sustenance, and which molds us even as we alter the landscape to human needs, proportions and aspirations. We can all probably agree that a land and its people are inextricably intertwined; this holds true whether the land consists of the paved streets of a city lined with tenements, or is the deep rich soil of western wheatfields. Out of this interaction come many of the values that determine and/or define our attitudes and our life styles, but just as the interactions taking place at the land-man interface are as varied as the landscape, its

resources, and its inhabitants, so too are the values that emerge to characterize a culture. As a result there is probably no single land ethic which is universally applicable; the physical and psychological requirements of cultures, sub-cultures and even individuals are too varied to be encompassed within a given ethic, and we have our different reasons for the preservation, alteration, utilization or destruction of any particular landscape. We need constantly to be reminded, however, of the inescapable fact that there is no practical substitute for land surfaces, and however trite it may sound and however ingenious our science and technology, we are utterly dependent upon the ecosystem of which we are a part.

As with the population question, there is a wealth of readily available literature which deals with the land and its agricultural productivity, its yield of mineral and energy resources, its withdrawal from productivity for housing, industry, recreation and the highways and power lines that spiderweb their way across the countryside. Central to a meaningful consideration of this immense topic is Man's Role in Changing the Face of the Earth (W. L. Thomas, editor), Henry Nash Smith's Virgin Land and Leo Marx's The Machine in the Garden, the first covering a wide range of topics, the latter two related more specifically to an examination of a changing American ethic as our population moved westward. For those who would visualize a land being altered through the course of many centuries and as a result of many influences, W. G. Hoskins' The Making of the English Landscape[12] is a splendid mixture of land, people, law, custom, industry, and poetry, with all elements threading their way through the text in the manner of the hawthorn hedges meandering through the English countryside.

But there is a literature of another kind as well, a humanistic genre in which the land is the stage on which the human drama is enacted. It is a literature that is basically regional as though the land and its people breed a voice that speaks for them, a feature that should be taken advantage of for educational purposes. John Steinbach's Grapes of Wrath tells of those uprooted in the 1930's by the environmentally disastrous drought that created the Dust Bowl of the lower Midwest; Harry M. Caudill's two books, Night Comes to the Cumberlands, and My Land is Dying, can be justaposed to The Foxfire Books, I and II, to gain an impression of the troubled, dispoiled land of Appalachia and its gentle, but fiercly independent, inhabitants; Aldo Leopold's The Sand County Almanac depicts in a sensitive manner the history of a once-productive, but now abandoned, farm at the edge of the Wisconsin prairie, a farm now being recaptured by nature as the effect of the presence of man is lessened; Henry Beston's Outermost House, and John and Mildred Teal's The Life and Death of a Salt Marsh sense, each in its own way, the interactions that take place when men and the land impinge upon the margin of the sea, with the authors expressing their different value systems and images. In a wholly different manner, the deep psychological impact of a land on its inhabitants can be gained from Thomas Hardy's The Return of the Native and O. E. Rolvaag's Giants in the Earth, the former set in the English moors and the latter in the ~~Nebraska~~ North Dakota prairies, and with both sensing the frailty of man in the presence of somber and foreboding natural forces. By way of contrast, one can turn to the many passages of celebration in Walt Whitman's Leaves of Grass, or to certain of the poems of Wordsworth and Robert Frost; here the approach is that of a oneness with the land, and expression of belonging or

of coming home rather than that of being an intruder.

Two short essays are worthy of final mention in this regard. They are less well known than Garrett Hardin's much reprinted Tragedy of the Commons,[13] and their approach is from a different vantage point, but they are of equal significance in gaining a sense of the interaction between man and his surroundings. The first is The Westward-Moving House[14] by L. B. Jackson, the second Hugh Raup's The View from John Sanderson's Farm: A Perspective for the Use of the Land.[15] In both essays, the land is subordinate to the people who lived out their lives on it. As Raup has put it:

> ...the principal role of the land and the forests has been that of stage and scenery. The significant figures have always been the people, and the ideas they have had about what they might do at specific points in time with the stage properties at hand. At each such point in time an actor would play his role only by the rules he knew - in terms of his own conception of his relation to the play of which he was a part He was always hampered by lack of precise knowledge of the stage and its properties, the land and the forests. Perhaps more important than this, he had severly limited knowledge of the changing rules by which he and other actors of his time were playing. Both of these failings are perennial and no doubt will continue to be....
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> John Sanderson's general attitude toward his farm and his land cannot be stated any more precisely than his planning horizons....For the early New England farmers the forested wilderness was an impersonal, physical barrier to be tamed and exploited to the hilt...
>
> ...Throughout most of the long period of his early experiments man was dealing with things and processes in wild nature that were entirely mysterious and potentially evil. Only in the last century or so, with the rise of conservation thought in all its manifestations, has he confronted himself repeatedly with the accusation of sin against the same "nature" and "land" that were for so long his arch enemies. This sin has had to be defended by whatever means came to hand - scientific research, favorable cost-benefit ratios, or simple economic necessity. Fortunately for John Sanderson he lived before his sense of sin against his land became popular, so it probably never occurred to him to defend it.

The Museum of Fine Arts in Boston displays a Tahitian painting by Paul Gauguin. It is, to my relatively untrained eye, similar to other paintings that he has done, but it bears the enigmatic title Whence do we come? What are we? Whither are we going? In Gaugin's words, the title was added almost as an afterthought when "My eyes close in order to see without understanding the dream...that flies ahead of me, and I perceive the mournful procession of my hopes."

The recent flood of environmental literature is almost a dirge of the "mournful procession" of our values and actions. Looking back in time, one can say that the results were predictable. Our value systems, making use of the available science and technology, have wrought changes in the land and its meaning to which neither the land nor the human spirit could accommodate with ease, and crises of both an environmental and a spiritual nature are inevitable. John Platt[16] has said that "The future is waiting to respond to a touch, if it is the right touch. It is ingenuity we need, not lamentations." As we seek solutions to environmental problems and attempt to adjust our way of life to an environment finite in space and resources, the "right touch" must be a humanized one, with kaleidoscopic man, existing in a kaleidoscopic environment, central in our thoughts and our teaching. And our image of this many-faceted individual is as much derived from the humanist as it is from the scientist and the engineer.

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